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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/058,715 | 01/28/2002 | Amit Singhal | 02-02 | 7912 |

7590 12/09/2003

William L. Botjer
PO Box 478
Center Moriches, NY 11934

EXAMINER

NGUYEN, CAM N

| | |
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| ART UNIT | PAPER NUMBER |
|----------|--------------|

1754

DATE MAILED: 12/09/2003

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/058,715

Applicant(s)

SINGHAL ET AL.

Examiner

Cam N Nguyen

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/02/03 (an amendment/response).
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4, 9-12, 14-16, 18 and 19 is/are allowed.
- 6) ☒ Claim(s) 17 is/are rejected.
- 7) ☒ Claim(s) 5-8 & 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Applicants' remarks and amendments, filed on October 02, 2003, have been carefully considered. Claims 1, 10-16, & 18 have been amended.

Claims 1-19 are pending in this application.

Claim Objections

2. Claims 6-8 & 13 are objected to because of the following informalities:

- A. In claim 6, line 1, "step" should be changed to --step (c) --.
- B. In claim 7, line 1, "step" should be changed to --step (c) --.
- C. In claim 8, line 1, "step" should be changed to --step (c) --.
- D. In claim 13, line 2, a period -- . -- should be inserted at the end of the claim.

Appropriate correction is required.

3. Claim 5 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Applicants recite a range of "5-100 nm" in claim 5. It is considered the upper range of "100 nm" is outside of the range recited in claim 1 because claim 1 recites "said TiO₂ nanoparticles having an average primary particle size of less than 100 nm".

Claim Rejections - 35 USC § 102(e)/103

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 17 is rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yamawaki et al., "hereinafter Yamawaki", (US Pat. 6,475,673 B1).

Yamawaki discloses lithium titanate having a formula $\text{Li}_4\text{Ti}_5\text{O}_{12}$ (see col. 2, ln 22). The lithium titanate having an average particle size in the range of 0.1 to 15 μm , preferably in the range of 0.3 to 10 μm , and is more preferably in the range of 0.5 to 5

um (see col. 4, ln 14-21). Note that, a particle size of 0.1 to 15 um is equivalent to 100-5000 nm, which provides for nanostructured particles $\text{Li}_4\text{Ti}_5\text{O}_{12}$.

Yamawaki teaches the claimed nanostructured particles $\text{Li}_4\text{Ti}_5\text{O}_{12}$, thus anticipates the claim.

Recitation of product-by-process in the claim is noted. While the product of the reference is not made by the same process, the product made is the same the product being claimed. It has been held that "even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even the prior art product was made by a different process." See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Allowable Subject Matter

6. The following is a statement of reason(s) for allowance of the claimed subject matter.

As concern with claims 1-16, the prior art does not disclose or fairly suggest a method of producing nanostructured $\text{Li}_4\text{Ti}_5\text{O}_{12}$ particles requiring step (a) in combination with step (b) and resulting in a crystal structure, wherein the crystals are less than 100 nm in size (as specified in claim 1).

As concern with claims 18-20, the prior art does not disclose or fairly suggest a nanostructured $\text{Li}_4\text{Ti}_5\text{O}_{12}$ particles, having a spinel type crystal structure and wherein the particles are composed of crystals that are less than 100 nm in size (as specified in claim 18).

Applicants' urging is found persuasive and that there is no motivation to combine the teachings of the references together.

Response to Applicants' Arguments

7. Applicants' amendment/remarks, filed on 10/02/03, have been fully considered, but not deemed persuasive in view of the new ground of objections and the following reasons.

Claim 17 remains rejected because it is a product-by-process claim. Since this product-by-process claim itself does not contain any product limitations, such as particle size or properties about the product, it is not patentable over the prior art.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

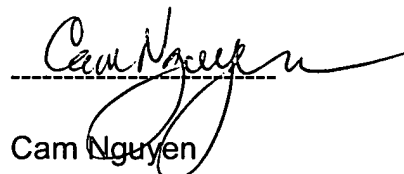
Conclusion

9. Claims 1-19 are pending. Claims 5-8 & 13 are objected. Claim 17 is rejected. Claims 1-4, 9-12, 14-16, & 18-19 are allowed.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Cam Nguyen, whose telephone number is (703) 305-3923. The examiner can normally be reached on M-F from 8:30 am. to 6:00 pm, with alternative Monday off.

The appropriate fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 (before finals) and (703) 872-9311 (after-final).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Cam Nguyen

Primary Examiner

Art Unit: 1754

Nguyen/cnn *CNN*

December 5, 2003